

AMENDMENTS TO THE CLAIMS

1. (Currently amended) An optical module comprising:

an elongated optical waveguide having multiple cores buried in a clad;

a rectangular-shaped silicon optical waveguide substrate, on which said optical waveguide is mounted, and along ~~both each side edges edge~~ of an upper surface ~~thereof of~~ which a high precision steps are step is formed extending in a longitudinal direction of the waveguide substrate; and

an optical fiber connecting end member ~~including guide pin insertion holes for inserting guide pins and a through~~ having a hole therethrough for accommodating and fixing an end surface of the optical waveguide substrate, the hole having a top surface, a bottom surface, a first side surface, and a second side surface,

wherein ~~on an inside of the through hole, steps are a step is~~ formed on the top surface of the hole, along both each side edges surface of an inner surface of the through hole, so as to fit the high precision steps on the waveguide substrate when the waveguide substrate is inserted in the ~~through hole~~.
2. (Currently amended) An optical module according to claim 1, ~~wherein further comprising~~ an optical element is mounted on and connected to said optical waveguide.
3. (Currently amended) An optical module according to claim 1 wherein:

an inclined groove, that inclines relative to the longitudinal direction of the optical waveguide, is formed on said optical waveguide, and

said optical module further comprises a light reflecting device ~~that reflects positioned in the inclined groove, to reflect~~ light propagated along said optical waveguide to the outside of said optical waveguide, ~~is provided in said inclined groove.~~

4. (Currently amended) An optical module according to claim 1 wherein an inclined groove₁ that inclines relative to the longitudinal direction of the optical waveguide₁ is formed on said optical waveguide, and said optical module further comprises an optical wavelength selecting device ~~that selects positioned in the inclined groove, to select~~ light having a wavelength in a desired range from the light propagated through said optical waveguide and extracts the selected light to the outside of said optical waveguide, ~~is provided in said inclined groove.~~

5-6. (Cancelled)

7. (Currently amended) An optical element housing member having ~~formed therein a hole therethrough~~ for accommodating ~~and fixing one or the other an~~ end of a substrate and optically connecting the substrate to an optical element, wherein:
the hole has a top surface, a bottom surface, a first side surface, and a second side surface, and
a step ~~steps~~ for positioning the substrate ~~are is~~ formed on the top surface of the hole, along ~~both each side edges of an inner~~ surface of the hole.

8-12. (Cancelled)

13. (Currently amended) An optical module according to claim 1, ~~wherein further~~
comprising an optical element is-mounted on said waveguide substrate and optically
connected to said optical waveguide.

14. (New) An optical module according to claim 1, wherein said end member has guide
pin insertion holes extending into one end thereof, for insertion of guide pins.

15. (New) An optical module according to claim 1, wherein said end member has a
cavity that opens from the bottom surface of the hole to the bottom of said end member,
permitting said substrate to be pressed toward the top surface of the hole so as to align the
high precision steps on said substrate with the steps of the hole.

16. (New) An optical module according to claim 15, wherein said substrate is affixed to
said end member with an epoxy glue.

17. (New) An optical element housing member according to claim 7, wherein said
housing member includes guide pin insertion holes extending into one end thereof, for
insertion of guide pins.

18. (New) An optical element housing member according to claim 7, wherein said

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housing member includes a cavity that opens from the bottom surface of the hole to the bottom of said housing member, permitting the substrate to be pressed toward the top surface of the hole so as to align steps on the substrate with the steps of the hole.